

REMARKS

Applicants wish to point out that the examiner states, in the Office Action Summary, that claims 22-41 and 57-68 are pending and rejected. It should be noted that claim 42 is also pending and rejected in the application.

The examiner has rejected claims 22-30, 42 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. Applicants respectfully submit that this ground of rejection has been overcome by the instant amendment.

Independent claims 22, 42 and 57 have been amended to include the limitations of claim 34. All of the claims having the limitation of claim 34 have been rejected in view of Zimmerman, et al. '932. However, Zimmerman, et al. '931 is not available as prior art against this application. It is pointed out that Scott M. Zimmerman and Karl W. Beeson are co-inventors in this application as well as in Zimmerman, et al. '931. This application is a division of application serial number 09/411,115, filed October 4, 1999, which was a division of, application serial number 08/759,338 filed December 2, 1996. Hence this application was co-pending with Zimmerman, et al. '931 and each was subject to an obligation of assignment to the same party at the time the inventions were made, namely AlliedSignal inc, now Honeywell International, Inc. This divisional application was also filed after November 29, 1999. Hence under the AIPA, Zimmerman, et al. '931 is not available as 35 U.S.C 103 prior art against this application. All rejections of claims having the limitation of claim 34 should be withdrawn.

Takahashi relates to the formation of photosensitive resin compositions for the production of relief printing plates. The examiner concedes that Takahashi fails to teach the subject matter of claim 27 wherein the means for directing light generates light having a divergence angle of less than ten degrees, and claim 28 wherein the means for directing light directs the light through the substrate in more than one dose.

The examiner thus cites Rendulic in an effort to fill these deficiencies of Takahashi. Rendulic relates to printed circuit boards. More particularly it teaches a printed circuit board having polymers coated and cured thereon. Indeed, Rendulic teaches the use of a collimated light source with an angle of deviation between 3 and 1.5 degrees. These claims now contain the limitations of claim 34 and hence the rejection under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. should be withdrawn.

The examiner has rejected claims 34-36 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. and in further view of Zimmerman et al. The examiner is of the position that the combination of Takahashi and Rendulic teach each aspect of the present invention except for the array of optical waveguides with lenticular elements juxtaposed with polymerizable materials. The examiner thus attempts to fill this void by citing Zimmerman. Applicants respectfully urge that this is not the case. The arguments over Takahashi et al. and Rendulic et al. are repeated from above and apply equally here. As discussed above, Zimmerman, et al is not available as prior art.

In addition, while Zimmerman et al. relates to illumination systems having a light source, a transparent tapered waveguide, and a transparent reflecting means attached to the waveguide, Applicants submit that there is no teaching or suggestion in the art which would lead one skilled in the art to combine Zimmerman with Takahashi and Rendulic.

Citing references that merely indicate that isolated elements recited in the claims are known is not a sufficient basis for a conclusion of obviousness; there must be something that suggests the desirability of combining the references in a manner calculated to arrive at the claimed invention. Ex parte Hiyamizu, 10 U.S.P.Q.2d 1393, 1394 (PTO Bd. Pat. Ap. and Int., 1988). Zimmerman relates to illumination systems, while Takahashi relates to relief printing plates, and Rendulic relates to printed circuit boards. Further, as stated above, neither Takahashi nor Rendulic

disclose light diffusion or even mention the words "diffuse" or "diffusion". Applicants submit that the examiner has failed to show any teaching or motivation to combine the teachings from these references which exist in three very different fields of art. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The examiner has rejected claims 57-63 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. This embodiment of the presently claimed invention relates to an apparatus for manufacturing a light diffusing structure, comprising a metallic layer formed on a layer of photopolymerizable material exposed to a source of collimated or nearly-collimated light first directed through a transparent or translucent substrate for a period of time sufficient to photopolymerize only a portion of the photopolymerizable material after the unphotopolymerized portion of the photopolymerizable portion has been removed. Applicants respectfully urge that this ground of rejection has been overcome by the instant amendment which includes the limitation of claim 34, which the examiner admits are not found in the combination of Takahashi et al. in view of Rendulic et al.

The examiner concedes that Takahashi fails to teach the subject matter of claim 62 wherein the light source generates light having a divergence angle of less than ten degrees, and claim 63 wherein the light source generates light in more than one dose.

The examiner cites Rendulic in an effort to fill these deficiencies of Takahashi. Applicants respectfully submit that this is inappropriate. Rendulic relates to printed circuit boards. More particularly it teaches a printed circuit board having polymers coated and cured thereon. Indeed, Rendulic teaches the use of a collimated light source with an angle of deviation between 3 and 1.5 degrees. However, their teachings relate to the formation of printed circuit boards on circuit board substrates. Rendulic does not disclose the use of a transparent or translucent substrate, and, in fact, nowhere does Rendulic even mention the words "diffuse" or "diffusion".

It is further urged that one skilled in the art would not combine Rendulic, which relates to printed circuit boards, with Takahashi, which relates to relief printing plates. These cited references are in different fields of art, and it is submitted that there is no teaching or suggestion in either of these references which would lead one skilled in the art to combine Takahashi and Rendulic in an effort to devise the light diffusing structure of the presently claimed invention. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The examiner has rejected claim 67 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. and in further view of Savant et al. The arguments over Takahashi et al. and Rendulic et al. are repeated from above and apply equally here. As discussed above, Savant, et al. is not prior art to this application. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The examiner has rejected claim 64 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. This embodiment of the present invention relates to a mold for manufacturing a light diffusing structure, comprising a metallic layer formed on a layer of a photopolymerizable material, comprising at least one photopolymerizable monomer or oligomer, and a photoinhibitor, exposed to a source of collimated or nearly-collimated light first directed through a transparent or translucent substrate, the substrate being fabricated from a material from one or more of the classes of (a) amorphous materials; (b) semi-crystalline materials that contain crystalline domains interspersed in an amorphous matrix; and (c) purely crystalline materials, for a period of time sufficient to photopolymerize only a portion of the photopolymerizable material after the unphotopolymerized portion of the photopolymerizable portion has been removed.

The examiner is of the position that Takahashi teaches each aspect of claim 64 except for the collimated light source and metal layer. Thus, the examiner again attempts to combine Rendulic with Takahashi to fill this void. Applicants respectfully urge that this is not the case. Independent claim 64 has been amended to include the limitation of claim 68. Claim 68 was

rejected in view of Savant, et al. This reference is not available as prior art against this application. This application has an effective filing date of December 2, 1996, as discussed above. Savant, et al. has an effective filing date of February 14, 1997. hence, Savant, et al is not available as prior art against this application. All rejections employing Savant, et al as a reference should be withdrawn.

The examiner has rejected claims 68 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. and in further view of Savant et al. This embodiment of the present invention relates to the subject matter of claim 64, wherein the photopolymerized portion has a surface having smooth bumps ranging from about 1 micron to about 20 microns in both height and width. The arguments over Takahashi et al. and Rendulic et al. are repeated from above and apply equally here. This reference is not available as prior art against this application. This application has an effective filing date of December 2, 1996, as discussed above. Savant, et al. has an effective filing date of February 14, 1997. hence, Savant, et al is not available as prior art against this application. All rejections employing Savant, et al as a reference should be withdrawn.

The examiner has rejected claims 22-30, 42 under 35 U.S.C. 103 over Matsumura et al. in view of Rendulic et al. Applicants respectfully submit that this ground of rejection has been obviated by the incorporation of the limitations of claim 34 into these claims.

Matsumura relates to the formation of a multicolor display. More particularly, it teaches a specific photosensitive resin which is deposited on a transparent electrode on a transparent substrate and exposed and developed to form a pattern. Applicants urge that, while Matsumura does teach a resin composition on a transparent substrate, it fails to teach the structure of the presently claimed invention. While the present invention teaches an apparatus for manufacturing a *light diffusing structure*, nowhere does Matsumura teach such a structure for

diffusing light. In fact, Matsumura et al. fails to mention the words "diffuse" or "diffusion" in their entire disclosure. It is therefore respectfully urged that the structure taught by Matsumura would not serve as a light diffuser, and that one skilled in the art would not seek to use the teachings of Matsumura in formulating the presently claimed invention. Further, as the examiner agrees, Matsumura fails to teach or suggest the use of a collimated light source, particularly at an angle of divergence not more than 10 degrees, or at more than one dose.

The examiner thus cites Rendulic in an effort to fill these deficiencies of Matsumura. Applicants respectfully submit that this is improper. Rendulic relates to printed circuit boards. More particularly it teaches a printed circuit board having polymers coated and cured thereon. Indeed, Rendulic teaches the use of a collimated light source with an angle of deviation between 3 and 1.5 degrees. However, their teachings relate to the formation of printed circuit boards on circuit board substrates. Rendulic does not disclose the use of a transparent or translucent substrate, and, in fact, nowhere does Rendulic even mention the words "diffuse" or "diffusion".

It is further urged that one skilled in the art would not combine Rendulic, which relates to printed circuit boards, with Matsumura, which relates to multicolor displays. These cited references are in different fields of art, and it is submitted that there is no teaching or suggestion in either of these references which would lead one skilled in the art to combine Matsumura and Rendulic in an effort to devise the light diffusing structure of the presently claimed invention.

Applicants therefore submit that the present invention is not made obvious by the combination the Examiner has suggested, and the 35 U.S.C. 103 rejection should be withdrawn.

The examiner has rejected claim 66 under 35 U.S.C. 103 over Matsumura et al. in view of Rendulic et al. and in further view of Savant et al. This embodiment of the invention relates to the apparatus of claim 42, wherein said photopolymerized portion has a surface having smooth bumps ranging from about 1 micron to about 20 microns in both height and width.

The arguments over Matsumura et al. and Rendulic et al. are repeated from above and apply equally here. Savant et al. is likewise not available as prior art to this application. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The examiner has rejected claims 34-36 under 35 U.S.C. 103 over Matsumura et al. in view of Rendulic et al. and in further view of Zimmerman et al. The examiner is of the position that the combination of Matsumura and Rendulic teach each aspect of the present invention except for the array of optical waveguides with lenticular elements juxtaposed with polymerizable materials. The examiner thus attempts to fill this void by citing Zimmerman. Applicants respectfully urge that this is not the case.

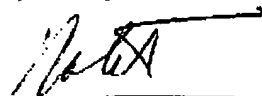
The arguments over Matsumura et al. and Rendulic et al. are repeated from above and apply equally here. As discussed above, Zimmerman, et al is not available as prior art to this application. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The examiner has rejected claims 31-33, 37-41, 65 under 35 U.S.C. 103 over Matsumura et al. in view of Rendulic et al. and in further view of Savant et al. and Zimmerman et al. Applicants respectfully urge that this ground of rejection is improper. Each of Savant, et al and Zimmerman, et al are not available as prior art to this application. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the examiner believes there is any matter which prevents allowance of the present application, it is requested that the undersigned be

contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,



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